UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/775,918 | 02/10/2004 | Arif Kazi | 71286 | 1402 |

23872 7590 06/22/2006

MCGLEW & TUTTLE, PC
P.O. BOX 9227
SCARBOROUGH STATION
SCARBOROUGH, NY 10510-9227

| EXAMINER | |
|---|---|
| WANG, JIN CHENG | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2628 | |

DATE MAILED: 06/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/775,918 | KAZI ET AL. | |
| | Examiner | Art Unit | |
| | Jin-Cheng Wang | 2628 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *28 December 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 3-13-06, 2-22-06
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Response to Amendment*

Applicant's submission (request for reconsideration) filed 12/28/2005 has been entered. Claims 1, 18-23 have been amended. Claims 1-44 are pending in the application.

### *Response to Arguments*

Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection set forth in the present Office Action based on Watanabe et al. U.S. Patent No. 6,763,284 (hereinafter Watanabe) in view of Huissoon U.S. Patent No. 6,044,308 (hereinafter Huissoon) and Roos U.S. Patent No. 6,615,112 (hereinafter Roos).

Applicant argues that Watanabe does not teach the claim limitation of robot-specific information set forth in the claim 1. However, in contrary to the applicant's arguments, Watanabe teaches the robot-specific information. Since applicant's robot-specific information takes any of a variety of forms including information related to any robot, it should be given the broadest reasonable interpretation. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See In re Van Geuns, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Watanabe discloses the working line or the working path of the robot, which is clearly the robot-specific information and it has nothing to do with the work-piece; see column 7, lines 15-35, column 8, lines 45-65 and column 11, lines 55-67 wherein the robot working path constitute the teaching points of the robot to produce the movement path or a motion program of the second robot.

Moreover, the position and orientations of the faces in the vicinity of the working path are robot specific information because the coordinates are measured in reference to the robot coordinate system, especially relative to the second robot.

Moreover, Watanabe further discloses that the position or locus on which a working robot operates is marked on an object to be worked and a position of **the marking on an image of a camera** is detected by means for specifying points constituting a working line and the operator can indicate a correct point to be recognized on the camera image. These points are marked in order for the robot to follow the path and thus are rightfully robot specific information, as opposed to the work-piece related information.

Finally, the working path is clearly faded over the image of the real environment on the viewing device. The image of the camera 2 or 12 is displayed on a screen of the image display device 3 and the detected point positions constituting the working line are displayed while being superimposed on this image. See Watanabe column 5, lines 10-17 and column 12, lines 45-67 and column 13, lines 1-50.

**Applicant has not even defined the term "fading" in the specification and the claim. In the absence of any clear meaning of "fading", the term "fading" is given the broadest interpretation consistent with the specification**. During patent examination, the claims are given the broadest reasonable interpretation consistent with the specification. See In re Morris, 127 F.3d 1048, 44 USPQ2d 1023 (Fed. Cir. 1997). See MPEP § 2111 - § 2116.01 for case law pertinent to claim analysis.

Although, it is not clear whether Watanabe discloses providing the viewing device with the image receiving unit, detecting an image of the real environment by the image receiving unit and fading computer-generated information into the image.

However, Huissoon discloses providing the viewing device with the image (e.g., column 6, lines 18-20), detecting an image of the real environment by the image receiving unit (column 6, lines 1-31) and fading computer-generated information into the image (column 6, lines 30-45 and Fig. 5a and 7b).

It would have been obvious to have combined Huissoon and Watanabe because Huissoon teaches other claim limitation set forth in the claim 1 as well. Huissoon teaches the virtual edge shown as the broken lines are "faded" over the topographical features viewed by a structured line sensor wherein the virtual edges are computed generated information as claimed.

Huissoon discloses a determination of a position and an orientation or pose of the reference frame S being the coordinate frame for sensor image frame (column 6, lines 5-10) and that robot-specific information such as the relative pose of the end-point frame E, which is the pose of coordinate frame E of the robot end-point with respect to a global coordinate reference frame of robot, is faded over the sensor image to determine the pose of the sensor frame S with respect to the end-point frame E using sensor measurements of a known fixture in the reference frame R of a calibration feature (column 6, lines 1-16). The tool center point (TCP) with respect to reference fixture is faded over the sensor image data (See Huissoon column 6, lines 60-67 and column 7, lines 1-8). The TCP is clearly robot-specific information as claimed.

One of the ordinary skill in the art would have been motivated to do so to provide the viewing device for detecting an image of the real environment (Huissoon column 11, lines 4-26)

so that the calibration markings can be displayed over the image of the real environment (Roos column 11, lines 40-50).

***Information Disclosure Statement***

The information disclosure statements (IDS) submitted on 2/22/2006 and 3/13/2006 have been considered by the examiner.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 23-37, 39, 41-44 are rejected under 35 U.S.C. 102(e) as being anticipated by Watanabe et al. U.S. Patent No. 6,763,284 (hereinafter Watanabe).

Re Claim 23:

Watanabe discloses device for visualizing computer-generated information in an image of the real environment, the device comprising:

An image receiving device (e.g., camera of column 11-13).

A viewing device, a determining means for determining a position and orientation or pose of the image receiving unit (*e.g., the 2-dimensional image pickup device 2 or 12 in Fig. 1 are*

*mounted on the robot and the reference work 7 in the field of view is captured using the camera 12 and the image is display on the image display device 3. A position to be measured by the first robot 5 is pointed on an image using a pointing device 4 and coordinates of the position pointed on the image are stored in the robot controller and thereby obtaining/determining the coordinates of the position. A view line* ***corresponding*** *to the position is obtained on the 3-dimensional image and the position and the orientation of the camera 12; column 11-12. Moreover, the 3-dimensional positions of a sequence of the points which constitute the working line thus obtained are utilized as teaching points of the robot and thus constitute the robot specific information as teaching points of the robot to produce the movement path or a motion program of the robot 5, see column 7, lines 20-35. It is also disclosed that the orientations of faces in the vicinity of the working line are measured in correspondence to the respective points. The measurement start point is selected on a working line on which an actual working is performed. The robot having the image pickup device 2 or 12 constitutes an image receiving unit*) a and that robot-specific information (*e.g., the working line or the working path of the robot is the robot-specific information; column 8, lines 50-60 and column 11, lines 55-67 wherein* ***the robot working path is clearly the robot-specific information, that constitute the teaching points of the robot, which is determined to produce the movement path or a motion program of the second robot***) and by a fading means for fading the determination of corresponding robot-specific information over the image of the real environment on the viewing device (*e.g.,* ***the position or locus on which a working robot operates is marked on an object to be worked and a position of the marking on an image of a camera is detected by means for specifying points constituting a working line and the operator can indicate a correct point to be recognized on***

***the camera image***. *Therefore, the working path is clearly faded over the image of the real environment on the viewing device. The image of the camera 2 or 12 is displayed on a screen of the image display device 3 and* ***the detected point positions constituting the working line are displayed while being superimposed on this image****; column 5, lines 10-17 and column 12, lines 45-67 and column 13, lines 1-50*).

Claim 24:

Watanabe further discloses a plurality of coordinate systems including the world coordinate system and the coordinates of the positions of the working path are detected and superimposed on the image of the reference work (e.g., column 12, lines 10-21).

Claim 25:

Watanabe further discloses a plurality of coordinates being faded/superimposed on the reference image and the coordinates are given as coordinates to a tool coordinate system fixed on the distal end portion of the hand of the robot (column 2, lines 40-49).

Claim 26:

Watanabe further discloses the coordinate positions of the working path being faded/superimposed on the reference image or the working object relative to the axes of the three-dimensional or two-dimensional space (column 2, lines 28-49).

Claim 27:

Watanabe further discloses an image of a control element (working path) of a robot manual programmer (operator) movable in at least two dimensions (either two-dimensional space or three-dimensional space) in faded in /superimposed over the image of the working object (*column 5, lines 10-17 and column 12, lines 45-67*).

Claim 28:

Watanabe further discloses an image of a control element such as a working path of a robot and the orientation of the robot hand are utilized (column 4 and column 7, lines 20-40).

Claim 29:

Watanabe further discloses at least one tool moved by a robot (Figs. 3-5), preferably several robot elements are faded into a working environment of a robot (Figs. 3-5).

Re Claim 30:

Watanabe further discloses teaching an attitude of a tool center point to the robot and a working path in relation to the reference work (column 7-8) and the thinning process of redundant detected points (column 7-8).

Re Claim 31:

Watanabe further discloses an image of a control element (working path) of a robot manual programmer (operator) movable in at least two dimensions (either two-dimensional space or three-dimensional space) in faded in /superimposed over the image of the working object (*column 5, lines 10-17 and column 12, lines 45-67*).

Claim 32:

Watanabe further discloses the coordinate positions of the working path being faded/superimposed on the reference image or the working object relative to the axes of the three-dimensional or two-dimensional space (column 2, lines 28-49).

Claim 33:

Watanabe further discloses adapting a robot working path to the position of a detected, real work-piece or the working object, a virtual image of the working object with a robot path adapted thereto is faded in, so that by superimposing the virtual work object image with the image of the real object it is possible to adapt the robot path to be performed to the position of the real working object (column 7-8 and column 12).

Claim 34:

Watanabe further discloses the working area reachable by a robot and/or a permitted operating area is visualized on the viewing device (column 12).

Claim 35:

Watanabe further discloses movement corridors of a robot tool, robot hand and/or further robot elements are visualized on the viewing device (column 5, lines 10-30 and column 12, lines 45-67).

Claim 36:

Watanabe further discloses permanent and/or instantaneous associations of at least one manual programmer of at least one robot are visualized (column 12, lines 45-67).

Claim 37:

Watanabe further discloses the position and orientation of the display are detected by fixed markings in space (column 12, lines 45-67).

Claim 38:

Watanabe further discloses the position and orientation of the viewing device are determined optically (column 12, lines 45-67).

Claim 39:

Watanabe further discloses the robot-specific information (*e.g., the working line or the working path of the robot is the robot-specific information; column 8, lines 50-60*) corresponding to this determination is faded over the image of the real environment on the viewing device (*e.g., the image of the camera 2 or 12 is displayed on a screen of the image display device 3 and* ***the detected point positions constituting the working line are displayed while being superimposed on this image****; column 5, lines 10-17 and column 12, lines 45-67 and column 13, lines 1-46*).

Claims 40-44:

Watanabe further discloses the robot-specific information (*e.g., the working line or the working path of the robot is the robot-specific information; column 8, lines 50-60*) corresponding to this determination is faded over the image of the real environment on the viewing device (*e.g., the image of the camera 2 or 12 is displayed on a screen of the image display device 3 and* ***the detected point positions constituting the working line are displayed while being superimposed on this image****; column 5, lines 10-17 and column 12, lines 45-67 and column 13, lines 1-46*).

## *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-15, 17, and 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. U.S. Patent No. 6,763,284 (hereinafter Watanabe) in view of Huissoon U.S.

Patent No. 6,044,308 (hereinafter Huissoon) and Roos U.S. Patent No. 6,615,112 (hereinafter Roos).

Re Claim 1:

Watanabe discloses method for fading computer-generated information into an image of the real environment detected by an image receiving unit located on a viewing device,

Wherein there is a determination of a position and an orientation or pose of the image receiving unit (*e.g., the 2-dimensional image pickup device 2 or 12 in Fig. 1 are mounted on the robot and the reference work 7 in the field of view is captured using the camera 12 and the image is display on the image display device 3. A position to be measured by the first robot 5 is pointed on an image using a pointing device 4 and coordinates of the position pointed on the image are stored in the robot controller and thereby obtaining/determining the coordinates of the position. A view line* ***corresponding*** *to the position is obtained on the 3-dimensional image and the position and the orientation of the camera 12; column 11-12. Moreover, the 3-dimensional positions of a sequence of the points which constitute the working line thus obtained are utilized as teaching points of the robot and thus constitute the robot specific information as teaching points of the robot to produce the movement path or a motion program of the robot 5, see column 7, lines 20-35. It is also disclosed that the orientations of faces in the vicinity of the working line are measured in correspondence to the respective points. The measurement start point is selected on a working line on which an actual working is performed. The robot having the image pickup device 2 or 12 constitutes an image receiving unit*) and that robot-specific information (*e.g., the working line or the working path of the robot is the robot-specific*

*information; column 8, lines 50-60 and column 11, lines 55-67 wherein* ***the robot working path is clearly the robot-specific information, that constitute the teaching points of the robot to produce the movement path or a motion program of the second robot***) corresponding to this determination is faded over the image of the real environment on the viewing device (*e.g.,* ***the position or locus on which a working robot operates is marked on an object to be worked and a position of the marking on an image of a camera is detected by means for specifying points constituting a working line and the operator can indicate a correct point to be recognized on the camera image***. *Therefore, the working path is clearly faded over the image of the real environment on the viewing device. The image of the camera 2 or 12 is displayed on a screen of the image display device 3 and* ***the detected point positions constituting the working line are displayed while being superimposed on this image****; column 5, lines 10-17 and column 12, lines 45-67 and column 13, lines 1-50*).

It is not clear whether Watanabe discloses providing the viewing device with the image receiving unit, detecting an image of the real environment by the image receiving unit and fading computer-generated information into the image.

However, Huissoon discloses providing the viewing device with the image (e.g., column 6, lines 18-20), detecting an image of the real environment by the image receiving unit (column 6, lines 1-31) and fading computer-generated information into the image (column 6, lines 30-45 and Fig. 5a and 7b).

It would have been obvious to have combined Huissoon and Watanabe because Huissoon teaches other claim limitation set forth in the claim 1 as well. Huissoon teaches the virtual edge

shown as the broken lines are "faded" over the topographical features viewed by a structured line sensor wherein the virtual edges are computed generated information as claimed.

Huissoon discloses a determination of a position and an orientation or pose of the reference frame S being the coordinate frame for sensor image frame (column 6, lines 5-10) and that robot-specific information such as the relative pose of the end-point frame E, which is the pose of coordinate frame E of the robot end-point with respect to a global coordinate reference frame of robot, is faded over the sensor image to determine the pose of the sensor frame S with respect to the end-point frame E using sensor measurements of a known fixture in the reference frame R of a calibration feature (column 6, lines 1-16). The tool center point (TCP) with respect to reference fixture is faded over the sensor image data (See Huissoon column 6, lines 60-67 and column 7, lines 1-8). The TCP is clearly robot-specific information as claimed.

One of the ordinary skill in the art would have been motivated to do so to provide the viewing device for detecting an image of the real environment (Huissoon column 11, lines 4-26) so that the calibration markings can be displayed over the image of the real environment (Roos column 11, lines 40-50).

Claim 2:

Watanabe further discloses a plurality of coordinate systems including the world coordinate system and the coordinates of the positions of the working path are detected and superimposed on the image of the reference work (e.g., column 12, lines 10-21).

Claim 3:

Watanabe further discloses a plurality of coordinates being faded/superimposed on the reference image and the coordinates are given as coordinates to a tool coordinate system fixed on the distal end portion of the hand of the robot (column 2, lines 40-49).

Claim 4:

Watanabe further discloses the coordinate positions of the working path being faded/superimposed on the reference image or the working object relative to the axes of the three-dimensional or two-dimensional space (column 2, lines 28-49).

Claim 5:

Watanabe further discloses an image of a control element (working path) of a robot manual programmer (operator) movable in at least two dimensions (either two-dimensional space or three-dimensional space) in faded in /superimposed over the image of the working object (*column 5, lines 10-17 and column 12, lines 45-67*).

Claim 6:

Watanabe further discloses an image of a control element such as a working path of a robot and the orientation of the robot hand are utilized (column 4 and column 7, lines 20-40).

Claim 7:

Watanabe further discloses at least one tool moved by a robot (Figs. 3-5), preferably several robot elements are faded into a working environment of a robot (Figs. 3-5).

Re Claim 8:

Watanabe further discloses teaching an attitude of a tool center point to the robot and a working path in relation to the reference work (column 7-8) and the thinning process of redundant detected points (column 7-8).

Re Claim 9:

Watanabe further discloses an image of a control element (working path) of a robot manual programmer (operator) movable in at least two dimensions (either two-dimensional space or three-dimensional space) in faded in /superimposed over the image of the working object (*column 5, lines 10-17 and column 12, lines 45-67*).

Claim 10:

Watanabe further discloses the coordinate positions of the working path being faded/superimposed on the reference image or the working object relative to the axes of the three-dimensional or two-dimensional space (column 2, lines 28-49).

Claim 11:

Watanabe further discloses adapting a robot working path to the position of a detected, real work-piece or the working object, a virtual image of the working object with a robot path adapted thereto is faded in, so that by superimposing the virtual work object image with the image of the real object it is possible to adapt the robot path to be performed to the position of the real working object (column 7-8 and column 12).

Claim 12:

Watanabe further discloses the working area reachable by a robot and/or a permitted operating area is visualized on the viewing device (column 12).

Claim 13:

Watanabe further discloses movement corridors of a robot tool, robot hand and/or further robot elements are visualized on the viewing device (column 5, lines 10-30 and column 12, lines 45-67).

Claim 14:

Watanabe further discloses permanent and/or instantaneous associations of at least one manual programmer of at least one robot are visualized (column 12, lines 45-67).

Claim 15:

Watanabe further discloses the position and orientation of the display are detected by fixed markings in space (column 12, lines 45-67).

Claim 17:

Watanabe further discloses the position and orientation of the viewing device are determined optically (column 12, lines 45-67).

Claim 19:

Watanabe further discloses the robot-specific information (*e.g., the working line or the working path of the robot is the robot-specific information; column 8, lines 50-60*) corresponding to this determination is faded over the image of the real environment on the viewing device (*e.g., the image of the camera 2 or 12 is displayed on a screen of the image display device 3 and* ***the detected point positions constituting the working line are displayed while being superimposed on this image****; column 5, lines 10-17 and column 12, lines 45-67 and column 13, lines 1-46*).

Claims 20-22:

Watanabe further discloses the robot-specific information (*e.g., the working line or the working path of the robot is the robot-specific information; column 8, lines 50-60*) corresponding

to this determination is faded over the image of the real environment on the viewing device (*e.g., the image of the camera 2 or 12 is displayed on a screen of the image display device 3 and* ***the detected point positions constituting the working line are displayed while being superimposed on this image****; column 5, lines 10-17 and column 12, lines 45-67 and column 13, lines 1-46*).

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. U.S. Patent No. 6,763,284 (hereinafter Watanabe) in view of Huissoon U.S. Patent No. 6,044,308 (hereinafter Huissoon) and Roos U.S. Patent No. 6,615,112 (hereinafter Roos).

Claim 16:

The claims further recite markings are detected by radio receivers. Watanabe, Huissoon and Roos are silent to the claim limitation.

It would have been obvious to have incorporated radio receivers to collect the working path information or to serve as an image pickup device because Watanabe discloses a general image pickup device such as a camera or an optical receiver for collecting the path information (Watanabe Figs. 1-5) and thereby suggesting the claim limitation of an image pickup device such as the radio receivers. Moreover, the radio receiver can be used in replace with the optical receiver as an alternative image and information collection device.

One of the ordinary skill in the art would have been motivated to use an alternative receiver to collect the robot working path information and to pick up the image information when necessary (column 9-10).

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. U.S. Patent No. 6,763,284 (hereinafter Watanabe) in view of Mizuno et al. U.S. Patent No. 5,876,325 (hereinafter Mizuno), Huissoon U.S. Patent No. 6,044,308 (hereinafter Huissoon) and Roos U.S. Patent No. 6,615,112 (hereinafter Roos).

Claim 18:

The claims further recite data spectacles to be worn by a user for displaying the robot information. Watanabe, Huissoon and Roos are silent to the claim limitation.

However, Mizuno discloses HMD for displaying the robot information (Mizuno Fig. 28 and 35).

It would have been obvious to have incorporated HMD to display the robot information because Watanabe discloses a display device connected to the robot for collecting the robot specific information (Watanabe Figs. 1-5) and Mizuno discloses HMD coupled to the robot manipulators for collecting the robot specific information (Mizuno Figs. 28 and 35) and therefore an alternative display device can be used to collect the robot specific information.

One of the ordinary skill in the art would have been motivated to use an alternative display device such as an HMD so that an operator armed with HMD can directly see the work performed while specifying the points along the working path (Watanabe column 12, lines 45-67).

Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. U.S. Patent No. 6,763,284 (hereinafter Watanabe).

Claim 38:

The claims further recite markings are detected by radio receivers. Watanabe is silent to the claim limitation.

It would have been obvious to have incorporated radio receivers to collect the working path information or to serve as an image pickup device because Watanabe discloses a general image pickup device such as a camera or an optical receiver for collecting the path information (Watanabe Figs. 1-5) and thereby suggesting the claim limitation of an image pickup device such as the radio receivers. Moreover, the radio receiver can be used in replace with the optical receiver as an alternative image and information collection device.

One of the ordinary skill in the art would have been motivated to use an alternative receiver to collect the robot working path information and to pick up the image information when necessary (column 9-10).

Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. U.S. Patent No. 6,763,284 (hereinafter Watanabe) in view of Mizuno et al. U.S. Patent No. 5,876,325 (hereinafter Mizuno).

Claim 40:

The claims further recite data spectacles to be worn by a user for displaying the robot information. Watanabe is silent to the claim limitation.

However, Mizuno discloses HMD for displaying the robot information (Mizuno Fig. 28 and 35).

It would have been obvious to have incorporated HMD to display the robot information because Watanabe discloses a display device connected to the robot for collecting the robot specific information (Watanabe Figs. 1-5) and Mizuno discloses HMD coupled to the robot manipulators for collecting the robot specific information (Mizuno Figs. 28 and 35) and therefore an alternative display device can be used to collect the robot specific information.

One of the ordinary skill in the art would have been motivated to use an alternative display device such as an HMD so that an operator armed with HMD can directly see the work performed while specifying the points along the working path (Watanabe column 12, lines 45-67).

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

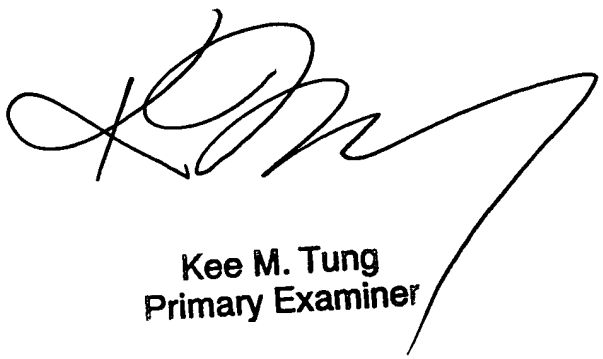
however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jin-Cheng Wang whose telephone number is (571) 272-7665. The examiner can normally be reached on 8:00 - 6:30 (Mon-Thu).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kee Tung can be reached on (571) 272-7794. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

jcw



Kee M. Tung
Primary Examiner